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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/771,809	01/29/2001	Glenn G. Amatucci	APP 1372-US	7825

7590 12/29/2003

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EXAMINER	
MERCADO, JULIAN A	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 12/29/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/771,809	AMATUCCI, GLENN G.
	Examiner	Art Unit
	Julian Mercado	1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) *1-7* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *8-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 21, 2003 has been entered.

Claims 1-10 are pending, with claims 1-7 having been withdrawn from consideration as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102 and 103

The rejection of claims 8 and 10 under 35 U.S.C. 102(b) based on Peramunage et al. has been withdrawn.

The rejection of claim 9 under 35 U.S.C. 102(b) or under 35 U.S.C. 103(a) based on Peramunage et al. has been withdrawn.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atsumi et al. (U.S. Pat. 6,120,938) in view of Peramunage et al. ("Preparation of Micron-Sized $Li_4Ti_5O_{12}$ and

its Electrochemistry in Polyacrylonitrile Electrolyte-Based Lithium Cells", *J. Electrochem. Soc.*, 1998, Vol. 145, No. 8, pp. 2609-2615).

Regarding independent claims 8 and 9, Atsumi et al. teaches a particulate zero strain lithium titanate intercalation compound of the formula $Li_yTi_zO_4$. (col. 5 line 26-34) As to this particulate material being a nanostructure, Atsumi et al. specifically teaches that the lithium titanate compound is preferably from 0.05 μm to 50 μm, thus, the claimed particle sizes of less than 100 nm is taught by Atsumi et al. to the extent that 0.05 μm or 50 nm and greater overlaps with this range. (col. 5 line 2-8) Additionally, Atsumi et al. is considered to provide motivation for the skilled artisan, e.g. "easiness in use as powder and realizing a satisfactory characteristic of the battery" which would motivate focusing on particle sizes at the bottom of the "preferred" range and to explore particle sizes below that range.

As to the limitations in independent claim 9 drawn to providing a mixture, heating said mixture, holding said mixture at a specified annealing temperature, and cooling the resulting particles, these limitations have not been given patentable weight as the method limitations do not further limit the product claim. The claimed product appears to be the same or similar to the prior art product insofar as being a lithium titanate intercalation compound. In the event that any differences can be shown by the product as recited in the product-by-process claim, such differences would have been obvious to the skilled artisan as a routine modification of the product absent of a showing of unexpected results. *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985).

Independent claim 10 is drawn to this nanostructure particulate zero strain lithium titanate intercalation compound as an active material in a rechargeable battery. Atsumi et al. specifically

teaches an anode or negative electrode comprising the lithium titanate material, a positive electrode, i.e. counter electrode comprising a second electrochemically active material such as metal lithium, and a separator interposed therebetween. (col. 8 line 55 et seq.)

Atsumi et al. does not explicitly teach the lithium titanate intercalation compound to be zero strain. However, Peramunage et al. teaches zero strain lithium insertion compounds. The skilled artisan would have found obvious to modify Atsumi et al.'s invention by employing a zero strain insertion compound for reasons such as enhanced rechargeability and rate capability due to the absence of structural deformations in the zero strain compound. (Peramunage et al., page 2609 under 'Introduction')

Response to Arguments

Applicant's arguments against Peramunage et al. insofar as not teaching an intercalation compound having particle sizes of less than 100 nm have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (703) 308-2383. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

jam

CAROL CHANEY
PRIMARY EXAMINER